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## P R E F A C E.



**T**HE Committee of Correspondence and Papers to whom the Publication of the Society's Transactions is entrusted, submit to the Society, and to the public at large, a general Summary of the contents of the present Volume.

The class of Agriculture and Rural Economy contains four Communications; one of which, by Messrs. Cowley and Staines, has obtained the Large Gold Medal, being the Premium offered for the ascertainment of certain important points of practice in Turnip Husbandry. These Gentlemen have drawn a crop of full-grown Turnips sufficiently early in the Winter to admit of the Land being prepared for a crop of Wheat; which Turnips being stacked, were preserved in a sound state fit for feeding cattle to the end of April in the following Spring. Two circumstances appear to have contributed to the successful preservation of the Turnips, namely, the state of dryness in which they were kept, but principally the great care that was taken to wound the roots as little as possible, and especially, in topping

the Turnips, to avoid any injury to the buds of the crown.

An interesting Communication from the same Gentlemen contains the particulars of their cultivation of the White Poppy, and of their obtaining therefrom, 60*lbs.* of excellent Opium.

J. Peart, esq. has gained a Gold Medal, for reclaiming Waste Moor Land, by converting it to permanent Pasture: the process, though expensive, has upon the whole succeeded, and is applicable to many thousand acres of rough mountainous land similarly situated.

Mr. Biddle's description of a cheap, simple, and effectual instrument for boring haystacks, in order to ventilate them when in danger of firing, or for the purpose of drawing a sample, in order to ascertain the quality of the Hay, will no doubt be duly appreciated, both by the growers and purchasers of this important article.

The class of Polite Arts contains a communication from Mr. Lupton, on the application of the art of Mezzotinto Engraving to plates of soft steel, instead of copper as heretofore practised. The capricious uncertainty in the number of copies which a copper mezzotinto plate will furnish, has always prevented the extension of

this branch of Art, notwithstanding its many advantages in point of expedition, economy, and picturesque effect. This objection is completely avoided by working on steel, and the additional labour is far more than compensated by the increased number of copies which such a plate will afford, when compared with even the most successfully executed copper one.

The class of Chemistry and Mineralogy includes two Communications. One of these by Mr. H. W. Reveley, on the Mill-Stones at present made use of in Tuscany, is interesting on two accounts; first, the superior method of dressing the Stones which it points out, which is applicable to Mill-Stones of all kinds; and secondly, as making known two materials employed in that country in preparing the finest Wheat Flour, which materials, although abundant in this Island, have hitherto served no useful purpose whatever, except as materials for roads.

The second Communication is from J. Meigh, esq., on the discovery of a cheap and effectual glaze for the common coarse red Earthenware, by which not only the solidity of the ware is greatly increased, but the hitherto presumed necessity of employing vitrified lead, as the material of the glaze is wholly avoided. The direful effects of the poison of lead manifested by severe

cholics, by paralysis of the limbs, and by untimely death, as manifested in the workmen employed in common house-painting, and in manufactories of White Lead are but too well known to medical men, and to all persons of general observation. It is not however sufficiently adverted to, that the same dangerous mineral constitutes the glaze of the common red Earthenware, in which the food of the lower classes is mostly prepared; in this state it is slightly soluble in animal oil, and more copiously in the acids of our common fruits, especially when their action is assisted by the heat necessary for cooking these articles. Many of the obscure visceral diseases of the poorer classes are greatly to be attributed to this little-suspected source, and the temporary removal of the pain occasioned by them, is one of the many motives which lead to the habitual use of distilled spirits. A knowledge of these circumstances induced the Society to offer their largest honorary premium for the discovery of a glaze composed of materials not prejudicial to health, and which, from its cheapness and fusibility at the comparatively low temperature at which the red Earthenware is baked, may supersede the use of glaze of lead. This important problem has been successfully resolved by Mr. Meigh, and the Committee feel assured, that in communicating to the public the process employed by that manufacturer, they

are putting it in the power of all others engaged in the same branch of business, at the same time to improve the quality of their ware, and to remove a source of much mischief to the health of those who are compelled by pecuniary considerations to make use of it.

In the class of Mechanics, Mr. Thom's Hydraulic Apparatus for regulating the supply of Water to Mills, and Mr. Hall's method of supplying water to the Boilers of Steam Engines will be found to contain several useful hints and points of practice to the Civil Engineer.

Mr. Pering's Wrought-Iron Carriage for Ship Guns, and Mr. Hookey's Coffin for repairing Ships afloat, especially for stopping up shot-holes, and removing defective sheets of copper within a few feet of the surface of the water, will be found useful, both in Ships of War and in the larger class of Merchant Vessels; while Lieut. Littlewort's Ship's Compass, and Mr. Wigzell's instrument for marking a Ship's place on a Chart, are calculated to increase the resources of the Navigator, and to enable the Masters of Merchantmen to attend more than in general they have hitherto done to the higher and more scientific parts of their profession.

The rewards granted to Mr. Holditch for his

Life Beacon, and to Capt. Gordon for his Life Boat, evince the continued attention of the Society, to whatever can diminish the perils of Navigation; while similar motives have determined the bestowal of the Gold Medal to Mr. Abraham, for his disinterested and active humanity, and his zealous personal exertions in inventing and urging the adoption of apparatus for the purpose of obviating the injurious effects of Dry-Grinding, as usually practised.

Mr. Ainger's General Correctional Scale for Temperature as applied to Hydrometers, will be found very useful, both in analytical and practical investigations, as combining great accuracy with expedition and facility of manipulation. Mr. Savage's Detached Escapement, Mr. Wynn's Hammer for Turret Clocks, Mr. Watson's System of Musical Notation for the use of the Blind, Mr. Baker's Improved Main Spring for Fire Arms, Mr. Bailey's Apparatus for conveniently Opening or Shutting the Windows of Churches, and other Public Buildings, Mr. Bowler's Trap, and Mr. Millikin's Bistoury, are sufficiently denoted by their titles, and require no particular remark.

Mr. Busby's Hydraulic Orrery is an ingenious idea, which has been partly carried into execution, of producing circular motions representing those

of the primary and secondary planets, by the mere impulse of lateral jets from syphons communicated to a system of floats revolving in one common circular bason.

The class of Manufactures contains seven Articles, one of which, is an improvement by Mr. S. Marshall, in the Wooden Blocks employed by Calico Printers; the object of which is, at the same time to increase the expedition and the precision of the work performed.

Two Articles relate to sundry Improvements introduced into the Draw-Boys attached to the Looms for Weaving Figured Silks, by two ingenious mechanics of Spitalfields, Mr. Hughes and Mr. Richards; and a third, to a much more important and elaborate Improvement added to the Ribbon Weavers' Loom, by Mr. Thompson, of Coventry.

By this latter Instrument, the manufacturer is enabled to produce articles which may successfully vie with the before unrivalled workmanship of the French and Italian artists; and the result cannot fail to be a still farther increase of activity in a branch of British industry, which has already received an increase of nearly one third since the termination of the Continental war.



Another, and by no means unimportant Manufacture, has received the notice of the Society. During the war from which we have not long emerged, the use of hats and bonnets of split wheaten straw was general among the females of every rank, the relative fineness of the plating, and delicacy of colour, forming the chief distinction between the high and the low-priced ones. The plating, which was wholly done by hand, formed a healthful and profitable employment for the wives and daughters of the labouring class, in the counties of Hertford, Bedford, Buckingham, and other parts adjoining. On the return, however, of commerce to its usual channels, hats of Leghorn plat found an easy entrance into the country, and met with a rapid sale, partly perhaps from the caprice of fashion, but also, from their real and incontestable superiority, both in beauty of material, in fineness of workmanship and durability, over the straw hats of native make. The consequence, however, of this diminished demand for our domestic manufacture, was the throwing out of employ many persons who had been accustomed to live reputably and in comfort on the produce of their industry, and much suffering was, in consequence, undergone by a very deserving part of the community. In the last Session a bonnet was laid before the Society, manufactured by the daughter of a farmer of

Connecticut, in the United States, which in colour and fineness of material, considerably exceeded the best specimens of Leghorn plat. On inquiry, it was found that this material is one of the most common indigenous grasses in that part of North America; and the idea immediately suggested itself to the Society, of reviving our own manufacture of fine plat, either by encouraging the importation of the raw material, or by procuring a quantity of the seed and raising the grass at home, in case our climate should be found not adverse to the project. A reward both honorary and pecuniary, was accordingly voted to Mrs. Wells, the inventress, on condition of the particulars of the manufacture being communicated to the Society, together with a certain quantity of the seed. These stipulations were complied with, the greater part of the seed has been distributed in England and in Ireland, has germinated, and the plants are now in a flourishing state. As a collateral aid in the object the Society had in view, they gladly bestowed their Silver Medal on Mr. Parry, for his successful ingenuity in first himself acquiring, and then teaching to others, the method of platting according to the Italian pattern.

The four rewards in the class of Colonies and Trade, and one in that of Manufactures have been bestowed with the intention of benefitting the

Colony of New South Wales. This settlement, the only European establishment on an island, the superficial extent of which is not much inferior to that of the Continent of Europe, is even now an object of great and yearly increasing interest. Its climate healthful, and similar in temperature to that of Madeira, holds an intermediate position between that of the mother country and of our intertropical possessions, precluding it from commercial competition with either, and at the same time assuring to it the speedy acquisition of those rich productions which characterize the southern and middle countries of Europe. Its population, British, or of British origin, amounts at present to about 40,000, well-disposed to exchange the new products of their laborious activity for the comforts, the conveniencies, and even the elegancies and luxuries of civilized life. Nothing, therefore, is wanting to put this Colony in the way of becoming, perhaps, the most valuable dependency of the Empire, than to encourage the raising and importing of those products which at the same time that they afford the settlers convenient articles of remittance may furnish the staple and raw material to some of our principal manufactures. With this view, the Society in the Session before last offered two Gold Medals, one for the importation of the largest quantity of fine wool, the growth of New South Wales, and a second for the importation of wool from the

same country of such a degree of fineness as shall render it applicable to the same uses as the best wools of Spain and Saxony, which are imported into this country to the average annual amount of 16,000,000 *lbs.* Both these medals were claimed by, and have been awarded to J. Macarthur, esq., the former for having sent to the London market, above 15,000 *lbs.* of fine wool, the produce of his Merino flocks in New South Wales; the other for wool from some of his select fleeces, which after having been sorted by one of the partners in a Mercantile house through whose hands most of the finest qualities of Saxon Wool are transmitted, was declared by the principal Wool Brokers of the metropolis to be equal to the best, or Electoral, Saxon Wool. In confirmation of the correctness of the judgment thus pronounced, a specimen of broad cloth made by Messrs. Starkey and Co. of Huddersfield, entirely of New South Wales Wool, purchased out of the last year's importation, was laid before the Society, for which the lesser Gold Medal has been awarded to the Manufacturer.

Medals have also been given to Mr. J. Raine, for his exertions in creating a Commercial demand for the Wool grown in Van Diemen's Land, and for the successful capture of Sea Elephants (a large species of Seal abounding in oil) at Mac-

quarrie's Islands situated to the South of the last-mentioned Settlement.

Here the Committee would willingly conclude, but a sense of justice, as well as obedience to the directions of the Society, compel them to make the following statement:

On referring to the 39th Volume, it will be found that the Silver Vulcan Medal was bestowed on Mr. Samuel Lake, a member of the Society, for a Double Door Hinge. It has been since proved, in consequence of a special investigation into the subject, that this Hinge, with the exception of a very trifling alteration, not for the better, was copied by Mr. Lake from one put up by Mr. J. Cooper, of Northumberland-street, New Road, in the house of Mrs. Ross, of Baker-street, in the year 1818. In consequence of the above investigation, the Society have come to the following resolution, "That Mr. Lake having been detected in imposing on the Society, he be required to return the Medal so obtained, and be expelled the Society."